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Case report

The association of increased stomach wall radiotracer uptake with prolonged use of Omeprazole capsules on myocardial perfusion imaging (MPI) using 99mTc-sestamibi SPECT

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Abstract

Myocardial perfusion imaging (MPI) is widely used in routine practice for diagnosis and risk stratification of coronary artery disease (CAD). Intense curvilinear activity in the stomach wall of a patient was seen on MPI raw data. This phenomenon was completely dissimilar to the familiar intraluminal gastric reflux of sestamibi. This observed activity could have resulted in false-positive or false-negative artifacts — and inaccurate diagnosis — of the inferior wall of the left ventricle after MPI processing. On further exploration, the current researchers found that the patient had a history of 10-year Omeprazole capsule consumption. The authors present this infrequent case of intense stomach uptake to stress the related clinical and diagnostic implications with the aim to stimulate acute awareness of possible, unexpected infringements on image quality that could potentially interfere with accurate interpretation of the data.

KEY words: 99mTc-sestamibi cardiac SPECT, myocardial perfusion imaging, gastric wall, proton pump inhibitors

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Introduction

Myocardial perfusion imaging (MPI) with exercise or pharmacological stress, either with thallium-201 (201Tl) or technetium-99m (99mTc)-sestamibi, is widely used for preparation of diagnostic and prognostic information regarding patients with proved or possible coronary artery disease (CAD) and it facilitates the accurate management of CAD patients [1]. However, with present myocardial radiotracers, such as 99mTc-sestamibi, rather high extra-cardiac activity is usually seen, which is mostly associated with physiologic hepatobiliary or renal excretion [2]. In contrast, there are limited reports suggesting possible non-physiologic reasons for these visceral uptakes, and occasionally, indicating different underlying pathologies [2]. Indeed, accidental pathological findings during myocardial perfusion imaging are not scarce and cautious examination of the full field of image acquisition has been useful in identifying these accidental findings [3–5]. Alternatively, most efforts concentrate on dissolving these interfering abdominal activities without attention to the clinical importance of such findings [6, 7].

On the MPI raw data of one such patient, intense curvilinear activity in the stomach wall was evident. This phenomenon was completely dissimilar to the familiar intraluminal gastric

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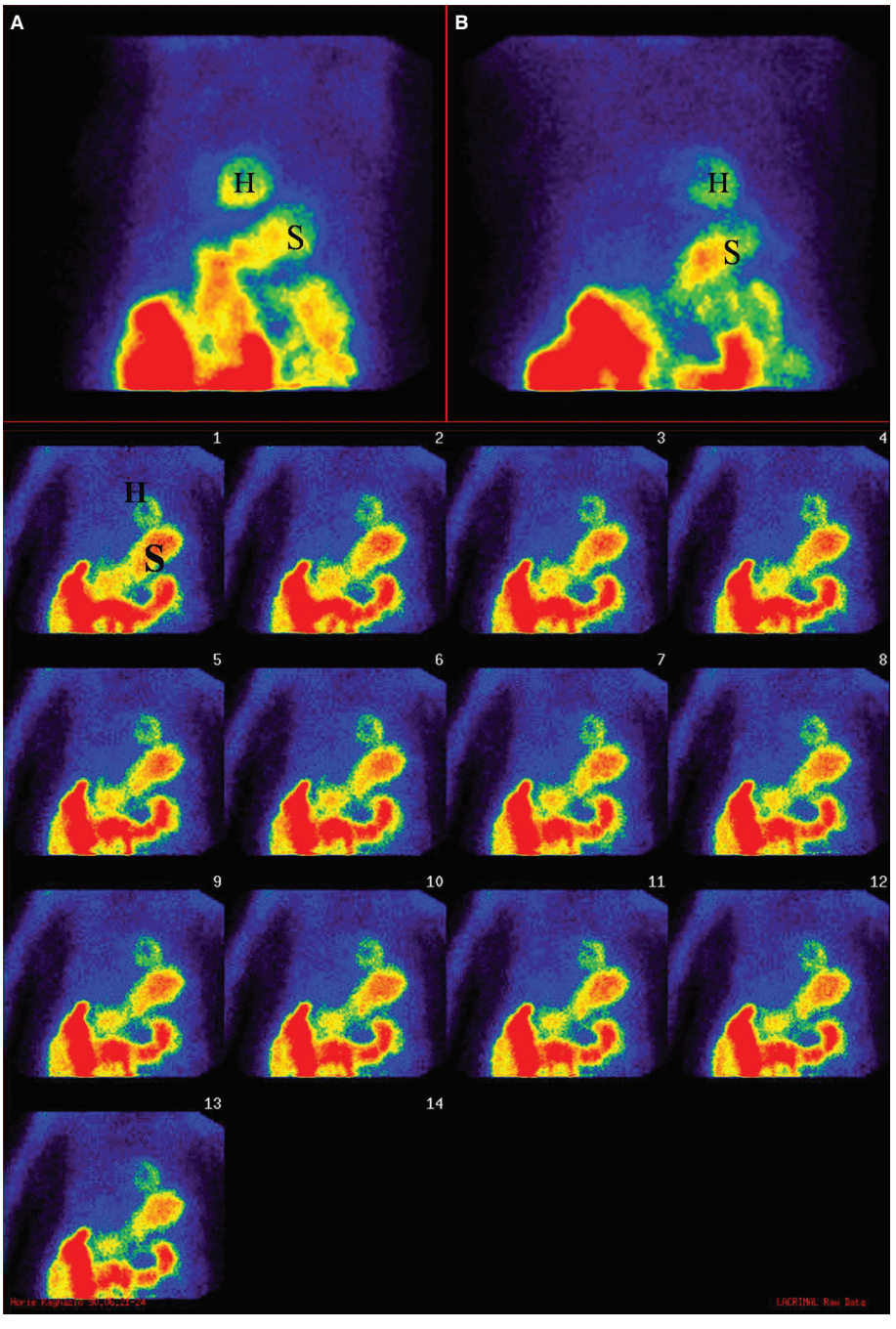

Figure 1. There is curvilinear activity with more intensity in the stomach wall than in the heart on both stress (**A**) and rest (**B**) raw data of myocardial perfusion imaging (MPI) using 99mTc-sestamibi SPECT. H, heart; S, stomach

reflux of sestamibi. This observed activity could have resulted in false-positive or false-negative artifacts — and inaccurate diagnosis — of the inferior wall of the left ventricle after MPI processing. On further exploration, the current researchers found that the patient had a history of 10-year Omeprazole capsule consumption. The authors present this infrequent case of intense stomach uptake to stress the related clinical and diagnostic implications with the aim to stimulate acute awareness of possible, unexpected infringements on image quality that could potentially interfere with accurate interpretation of the data.

Case report

A 54-year-old woman with an atypical chest pain was referred to the nuclear medicine department for assessment of possible coronary artery disease. The patient filled out a questionnaire that included demographics and risk factors for CAD. She had not had previous coronary artery bypass surgery (CABG) or percutaneous coronary intervention (PCI). The patient underwent a 2-day dipyridamole technetium 99m-sestamibi SPECT protocol. All cardiovascular medications were stopped for at least 2 days and the